Technical Area: Visual Resources - Plume

BACKGROUND

The Applicant has indicated in the AFC (Section 5.13, p. 5.13-12) that there are numerous existing visible water vapor plume sources at the adjacent Olive Avenue Plant, and the Applicant has also stated that the area surrounding the site is industrial. In order to assess the project's visible water vapor plume impacts staff requires more information regarding the existing plume setting.

Data Request 146: Please provide a list of all the visible water vapor plume sources located on the Olive Avenue plant and on other property adjacent or near to the project site. Also, please prove a map showing the location of each visible water vapor plume source provided in the list.

Response: See data request #148.

Technical Area: Visual Resources - Plume

BACKGROUND

The Applicant has indicated in the AFC (Section 5.13, p. 5.13-12) that there are numerous existing visible water vapor plume sources at the adjacent Olive Avenue Plant, and the Applicant has also stated that the area surrounding the site is industrial. In order to assess the project's visible water vapor plume impacts staff requires more information regarding the existing plume setting.

Data Request 147: For all currently existing Olive Avenue Plant visible water vapor plume sources please identify how often they operate, and for cooling towers please identify the Olive Avenue Plant visible plume sources that are planned to be decommissioned.

Response: October 24, 2001: Phone conversation with Mike Simmonds provided the following information regarding the existing Olive Avenue Power Plant facility. The facility currently has two stacks that are capable of operating 24 hours per day, 7 days per week at 44 and 50 megawatts. The stacks can produce plumes. Typically Olive #2 unit will produce a plume during low load operations. The plume may be described as medium to large and visible from surrounding areas. Olive #1 unit typically does not produce a plume 90% of the time. When the unit is operating, a medium to large plume is visible from the surrounding areas.

There are two cooling towers, which operate 24 hours per day, 7 days per week at 44 and 50 megawatts. The cooling towers have the potential to plume during low atmospheric conditions. Typical low atmospheric conditions exist from November through February. The plumes are medium to large in size and may be visible, given the right conditions.

Magnolia unit #4 cooling tower also has the potential to produce visible plumes but is only used in an extreme emergency situation as a back up power supply. The unit operates at 30 megawatts.

Units planned for decommission:

Magnolia unit #4 is planned for decommission in December 2002. The cooling tower associated with this unit does produce a plume. It operates at 30 megawatts.

Other units planned for decommission do not produce visible plumes.

Technical Area: Visual Resources - Plume

BACKGROUND

The Applicant has indicated in the AFC (Section 5.13, p. 5.13-12) that there are numerous existing visible water vapor plume sources at the adjacent Olive Avenue Plant, and the Applicant has also stated that the area surrounding the site is industrial. In order to assess the project's visible water vapor plume impacts staff requires more information regarding the existing plume setting.

Data Request 148: For other adjacent or nearby visible water vapor plume sources please specify whether any are both frequent and visually dominant.

Response: October 18, 2001: Meeting with Dennis K. Moran, Power Production Superintendent, provided the following surrounding locations that produce vapor plumes in low atmospheric conditions from November through February. These numbers correspond with their location on the enclosed maps. See Figure 1 for overview map.

1. Americold Logistics, 10 W. Magnolia Blvd. (next to bridge, right) This facility produces a regular medium to large visible plume during low atmospheric conditions from the large freezer facility. It is located immediately east of the Olive power plant. The plume is described as visually dominant. (Figure 1 and 2)

2. Aries Prepared Beef Company, 17 W. Magnolia Blvd. This facility has numerous small evaporative coolers, which produce very small visible plumes during low atmospheric conditions. The plumes are not visible from the surrounding areas. (Figure 1 and 2)

3. City of Glendale Power Plant (3.8 miles), 634 Bsnkins Way, Glendale, CA 91201-3012. Guillermo Espinosa, Senior Mechanical Engineer. This facility has 5 cooling towers that produce visible plumes. Units #3, #4, and #5 operate 24 hours, 7 days per week. Unit #3 operates at 20 megawatts. Units #4 & #5 operate at 18-22 megawatts, but have the capacity to operate at 44

megawatts in an emergency. Units #1 & #2 operate on a combined cycle at 2/3 capacity. Both operate at 20 megawatts.(Figure 1)

4. Media Center Holiday Inn, Corner of First and Angeleno Ave, 150 E. Angeleno Ave. This facility will produce medium to small plumes during very low atmospheric conditions, but also may have moisture arrestors, which typically suppress the development of dominant plumes. This structure is 20 stories high and plumes may be visible (from the roof) from the surrounding areas. The plume is described as occasionally visible and dominant. (Figure 1 and 2)

5. Media City Center (Burbank Mall) and IKEA, 201 E. Magnolia Blvd., Burbank, CA 91501 These structures will produce medium to small plumes during very low atmospheric conditions but also may have moisture arrestors, which typically suppress the development of dominant plumes. The plume is described as occasionally visible and dominant. (Figure 1 and 2)

6. Los Angeles Department of Water and Power, Valley Generating Station (6.1 miles), 11801 Sheldon Street, Los Angeles, 93152. Nazih Batarseh, station manager. While this facility is approximately 8 miles from the Burbank facility, plumes may be visible from the upper hills area of Burbank. Similar to the existing Burbank facility and Glendale facility, the Los Angeles facility plumes will be visible to travellers on I-5. Currently they operate 6 cooling towers, which have medium to large plumes during low atmospheric conditions from November through February. The facility is currently building one more cooling tower to be completed by June 2004. The plumes are described as visually dominant. (Figure 1)

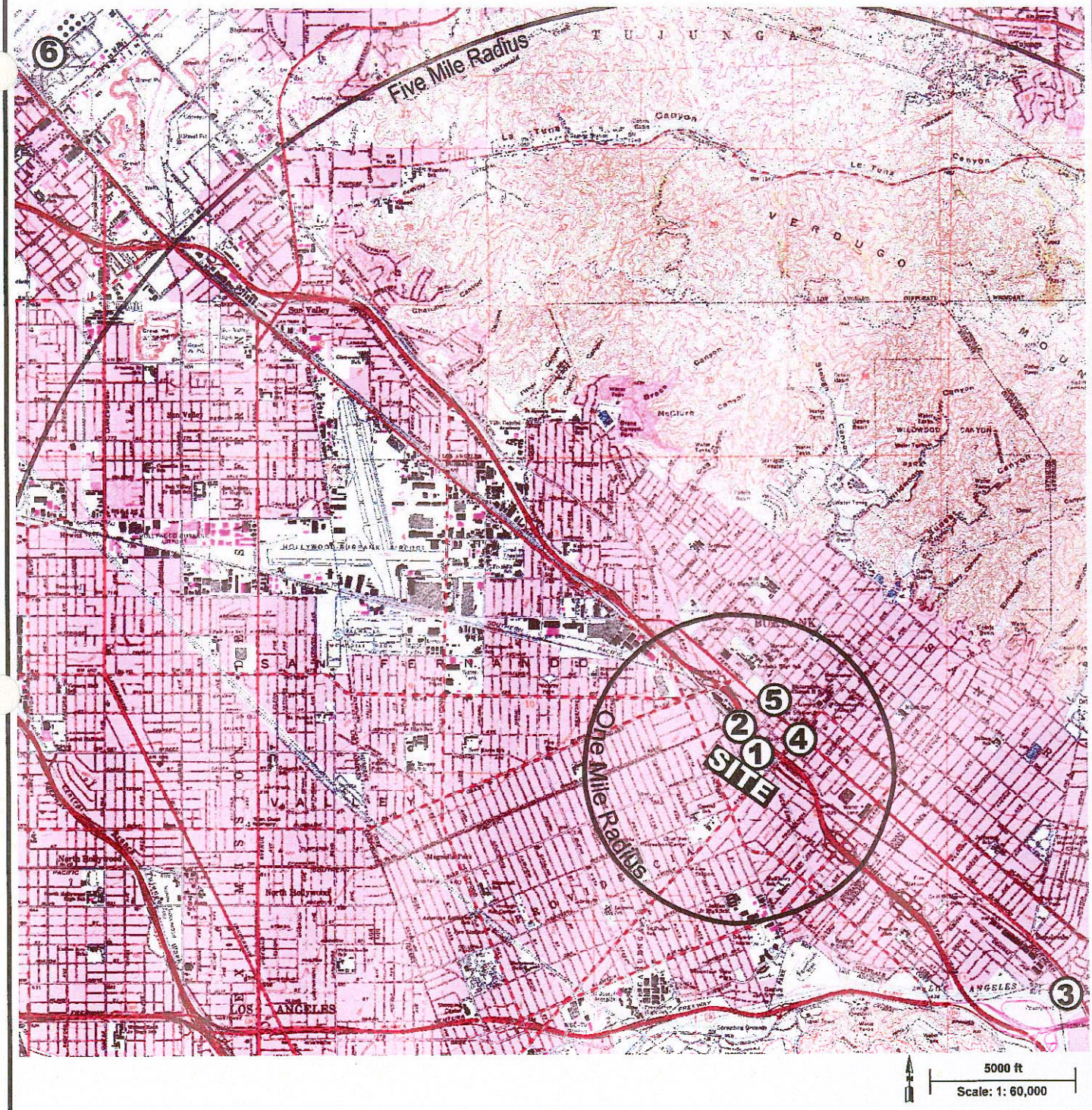
(See table below for summary of above information.)

Business Name	Address	Distance from Olive St Power facility	Plume description	Map reference
City of Burbank (Olive St facility)	Lake St., between Olive and Magnolia	Site	2 stack plumes and 2 cooling tower plumes	site
Americold Logistics	10 W. Magnolia Blvd.	Adjacent	Large evaporative cooling plume	1
Aries Prepared Beef Company	17 W. Magnolia Blvd.	Directly Across Magnolia Street	Numerous small evaporative cooling plumes	2
City of Glendale Power Plant	634 Bsnkins Way	3.8 miles	5 cooling tower plumes	3
Media Center Holiday Inn	150 E. Angeleno Ave.	.1 mile	Evaporative cooling plumes with moisture arrestors	4
Burbank Mall/IKEA Shopping Center	201 E. Magnolia Blvd.	.1 mile	Evaporative cooling plumes with moisture arrestors	5
Los Angeles Valley Power Facility	11801 Sheldon St.	6.1 miles	Six cooling tower plumes	6

The following locations are all within the surrounding Burbank industrial area and are representative of the type of industry nearby, and may or may not produce visible plumes.

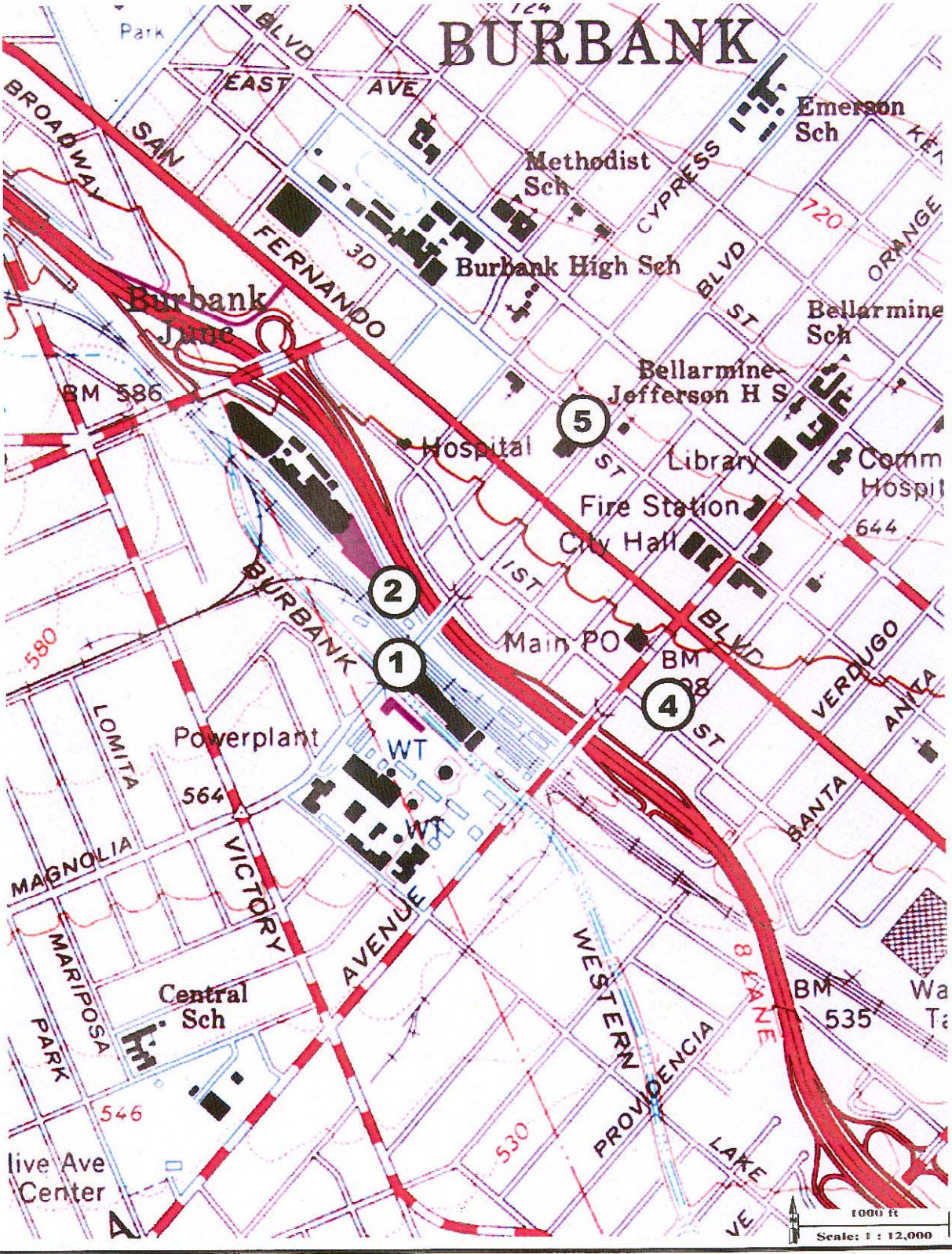
- Swaner Hardwood, 5 W. Magnolia Blvd. (under bridge, left)
- Union Pacific Transportation Company and Utility Department, 7 W. Magnolia Blvd. (under bridge, farther left)
- IERO Dynamics Corporation of America, 135 W. Magnolia Blvd.
- G.R. McCormick engineering and manufacturing, W. Magnolia Blvd.
- Star Fire Exstinguisher Company, 422 W. Magnolia Blvd.
- IIID Three D Plastics & L & D manufacturing, 430 W. Magnolia Blvd.
- Borrmann Steel, 110 W. Olive

- ZADA International Printing, 301 S. Flower St.
- Burbank Recycling Center, 500 S. Flower St.
- Community Chevrolet and Metro R.V. Inc., corner of Lake St. and Olive
- City of Burbank Public Works, 134 S. Lake St.
- Collision Care Centers, 300 S. Lake St.
- Storage Space, corner of Lake and Verdugo
- Kelley Paper, S. Flower St.



1 Americold Logistics
2 Aries Prepared Beef Co.
3 Glendale Power Plant
5 Media Center Holiday Inn
5 Media City Center
6 Valley Generating Station

Magnolia Power Project	**RESPONSE TO DATA REQUEST #148** FIGURE 1	October 2001



(1) Americold Logistics

(2) Aries Prepared Beef Company

(4) Media Center Holiday Inn

(5) Media City Center (Burbank Mall)

Magnolia Power Project	**RESPONSE TO DATA REQUEST #148** FIGURE 2	October 2001

Technical Area: Visual Resources - Plume

BACKGROUND

The Applicant has provided expected cooling tower plume dimension data in the AFC (Section 5.13, p. 5.13-12), and has provided staff with the Seasonal/Annual Cooling Tower Impact (SACTI) plume modeling files used to determine these expected plume dimensions. Staff's review of the modeling and meteorological files indicates that potentially erroneous "Standard Wind Direction" inputs were used, and staff also believes that more representative meteorological data is readily available from the National Climatic Data Center. Staff needs clarification regarding the SACTI modeling assumptions and meteorological data used in the Applicant's modeling analysis.

Data Request 149: Please identify why the three standard wind directions used in the SACTI modeling were not perpendicular to the tower axis, along the tower axis and at 45 to the tower axis as recommended in the SACTI user's manual.

Response: Based on the facility general arrangement, the long axis direction of the cooling tower is approximately 133 degrees east of north. Due to a mathematical error, the corrected representative wind directions are 44, 88, and 133 degrees. These corrected wind directions correspond to wind directions of 90, 45, and 0 degrees relative to the cooling tower structure. As indicated in Data Request 149, this is consistent with model guidance. The SACTI model was rerun using the corrected representative wind directions and revised model results are summarized in Table 1. The corrected representative wind directions result in an increase in plume dimensions for all scenarios modeled. The increase in probable plume size is likely due to the alignment of the cooling tower cells with the wind direction, a condition that is not expected to occur often in reality. This unique condition is the controlling case in the modeling analysis and is due to certain computational limitations inherent in the SACTI model. Model input and output files are provided in electronic form under separate cover.

TABLE 1

	Cooling Tower Plume Length (m)	Cooling Tower Plume Height (m)	Cooling Tower Plume Diameter (m)
All Hours, 5%	329	86	34
All Hours, 50%	156	27	14
No Fog, Night, 5%	348	92	37
No Fog, Night, 50%	157	27	14
No Fog, Day, 5%	263	65	31
No Fog, Day, 50%	154	27	13
No Fog, All Hours, 5%	329	86	34
No Fog, All Hours, 50%	156	27	14

Technical Area: Visual Resources - Plume

BACKGROUND

The Applicant has provided expected cooling tower plume dimension data in the AFC (Section 5.13, p. 5.13-12), and has provided staff with the Seasonal/Annual Cooling Tower Impact (SACTI) plume modeling files used to determine these expected plume dimensions. Staff's review of the modeling and meteorological files indicates that potentially erroneous "Standard Wind Direction" inputs were used, and staff also believes that more representative meteorological data is readily available from the National Climatic Data Center. Staff needs clarification regarding the SACTI modeling assumptions and meteorological data used in the Applicant's modeling analysis.

Data Request 150: Considering that several years of hourly meteorological data is available for Burbank Airport from NCDC, please identify why 1981 LAX meteorological data was used in the SACTI modeling analysis. Please note that the use of SCAQMD approved data, or data from the SCAQMD base meteorological year data of 1981, is not necessary or desired for plume modeling.

Response: The one year (1981) of District approved meteorological data was used to model probable cooling tower impacts in an effort to maintain consistency with other air quality modeling performed for the Magnolia Power Project. In addition, the meteorological data used includes a large number of hours with high stability and light winds. These conditions would likely lead to an increase in the predicted probable plume length, height, and width due to decreased mixing of the cooling tower exhaust with ambient air.

Technical Area: Visual Resources - Plume

BACKGROUND

Staff plans to perform a plume modeling analysis for the cooling tower using both the SACTI model and CSVP model. Staff will require additional project data to complete this analysis.

Data Request 151: Please at a minimum provide the operating exhaust temperatures and exhaust flows from the cooling tower that correspond to the following ambient conditions. The values presented should correspond to maximum anticipated heat rejection at the specified ambient conditions.

Response:

Ambient Condition	Exhaust Flow Rate (lbs/s/cell)	Exhaust Temperature (F)
41 F, 90% RH	1555	79.39
41 F, 60% RH	1563	77.45
41 F, 30% RH	1568	75.48
77 F, 90% RH	1500	99.08
77 F, 60% RH	1513	94.52
77 F, 30% RH	1528	89.13
95 F, 90% RH	--	--
95 F, 60% RH	1489	104.38
95 F, 30% RH	1509	96.93

Technical Area: Visual Resources - Plume

BACKGROUND

The visible water vapor plume discussion provided in the Visual Resources section of the AFC (Section 5.13 pg 5.13-12) does not provide information regarding the frequency, duration and size characteristics of the heat recover steam generator (HRSG) water vapor plumes. Staff will conduct a HRSG plume modeling analysis using the CSVP model to determine plume frequency and plume dimensions. Staff will require additional project data to complete this analysis.

Data Request 152: For staff to conduct CSVP modeling of the flume abated HRSG exhaust, please at a minimum provide HRSG exhaust parameter data to fill the following table. The values must correspond to maximum heat rejection operating conditions at the specified ambient conditions.

Response: The project engineer is generating the necessary data. This information will be provided as soon as it is available.

Technical Area: Visual Resources - Plume

BACKGROUND

The visible water vapor plume discussion provided in the Visual Resources section of the AFC (Section 5.13 pg 5.13-12) does not provide information regarding the frequency, duration and size characteristics of the heat recover steam generator (HRSG) water vapor plumes. Staff will conduct a HRSG plume modeling analysis using the CSVP model to determine plume frequency and plume dimensions. Staff will require additional project data to complete this analysis.

Data Request 153: Please provide a short discussion regarding the operating assumptions and basis for the HSRG exhaust parameter data that is provided, including power augmentation (i.e. water injection) and duct burner operating status. Also, please indicate any relationship between the use of duct burners and/or power augmentation with ambient conditions (i.e. note temperature/relative humidity conditions when either or both are not expected to be operated).

Response: Duct firing and steam injection are to provide peaking capacity during periods of high electrical demand. High electrical demand typically occurs during high ambient conditions, and duct firing is not expected to be required more than 1,000 hours per year or 12 hours during any 24-hour period. Steam injection (in conjunction with duct firing) will be reserved for extreme peaking conditions, which is expected not to exceed 200 hours per year or more than four hours in any 24-hour period.

Technical Area: Visual Resources - Plume

BACKGROUND

In addition to the HRSG, Staff may also model the plume frequency and dimensions of the auxiliary boiler. In order for staff to complete the plume assessment of the auxiliary boiler additional operating data is needed.

Data Request 154: Please at a minimum provide auxiliary boiler HRSG exhaust parameter data to fill the following table. The values must correspond to maximum heat input at the specified ambient conditions.

Response: The project engineer is generating the necessary data. This information will be provided as soon as it is available.

Technical Area: Visual Resources - Plume

BACKGROUND

In addition to the HRSG, Staff may also model the plume frequency and dimensions of the auxiliary boiler. In order for staff to complete the plume assessment of the auxiliary boiler additional operating data is needed.

Data Request 155: In lieu of the responding to the data request listed above, please identify if the Applicant is willing to limit operations of the auxiliary boiler to the 156 hours per year listed in the AFC (Section 5.2, p. 5.2-50), or to another similarly low number of hours per year. If the desired annual hourly limit is not 156 hours per year, please identify the desired annual hourly limit.

Response: The Applicant intends to limit operations of the auxiliary boiler to 200 hours per year.